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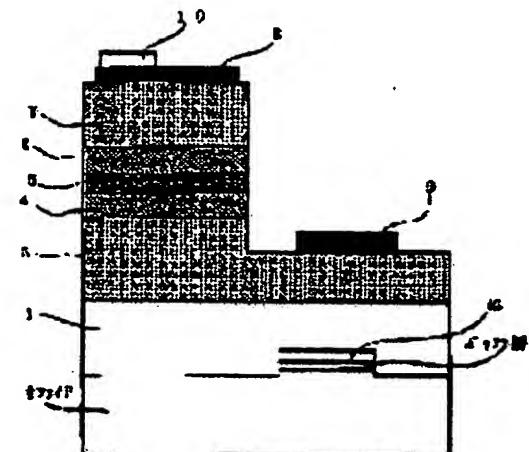
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54) NITRIDE SEMICONDUCTOR LIGHT EMITTING DIODE

57)Abstract:

PROBLEM TO BE SOLVED: To enhance emission efficiency and emission output by growing a semiconductor element emitting light in UV region where the emission peak wavelength has a specified value or less on a semiconductor substrate having dislocation density of a very low specified value.

SOLUTION: A buffer layer, an n-type contact layer 3 containing $\text{Al}_a\text{Ga}_{1-a}\text{N}$ ($0 \leq a < 0.1$), an n-type clad layer 4 containing $\text{Al}_e\text{Ga}_{1-e}\text{N}$ ($0 \leq e < 0.3$), an active layer 5 of $\text{In}_f\text{Ga}_{1-f}\text{N}$ ($0 \leq f < 0.1$), a p-type clad layer 6 containing $\text{Al}_d\text{Ga}_{1-d}\text{N}$ ($0 \leq d < 0.4$), and a p-type contact layer 7 containing $\text{Al}_b\text{Ga}_{1-b}\text{N}$ ($0 \leq b < 0.1$) are grown sequentially on a GaN substrate 1 having dislocation density of $10^6/\text{cm}^2$ or less thus forming a nitride semiconductor element having emission peak wavelength of 380 nm or less. The n-type contact layer 3 is provided with an electrode and the p-type contact layer 7 is provided with an electrode. In the case of a UV LED emitting light in UV region, emission efficiency is enhanced using a nitride semiconductor having low dislocation density.



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